The Open University

S103 discovering science

Practical Work Booklet

Contents

1 Introduction

This booklet provides information about the practical activities in S103, the contents of the practical kit, and standard safety advice for carrying out practical activities.

You are not required to return your kit. At the end of the course, please read Section 8 of this booklet on kit disposal.

2 Checking and labelling the contents of your kit

It is important that you familiarize yourself with the various items in the kit, and check that nothing is missing or damaged, as soon as possible. Identify the contents of the kit using Figure 1. Be careful not to mix up the geological specimens as they are not individually labelled. Take particular care to check that the diffraction grating and the hand lens are not damaged.

If any of the contents are missing or damaged, please write immediately, giving your name, address and OU Personal Identifier, and specifying the missing or damaged item, to:

S103 Home Kit Queries
Department of Earth Sciences
The Open University
Walton Hall
Milton Keynes, MK7 6AA
Tel/Fax: 01908 654871
e-mail: S103-Home-Kit-Queries@open.ac.uk

3.1 DS

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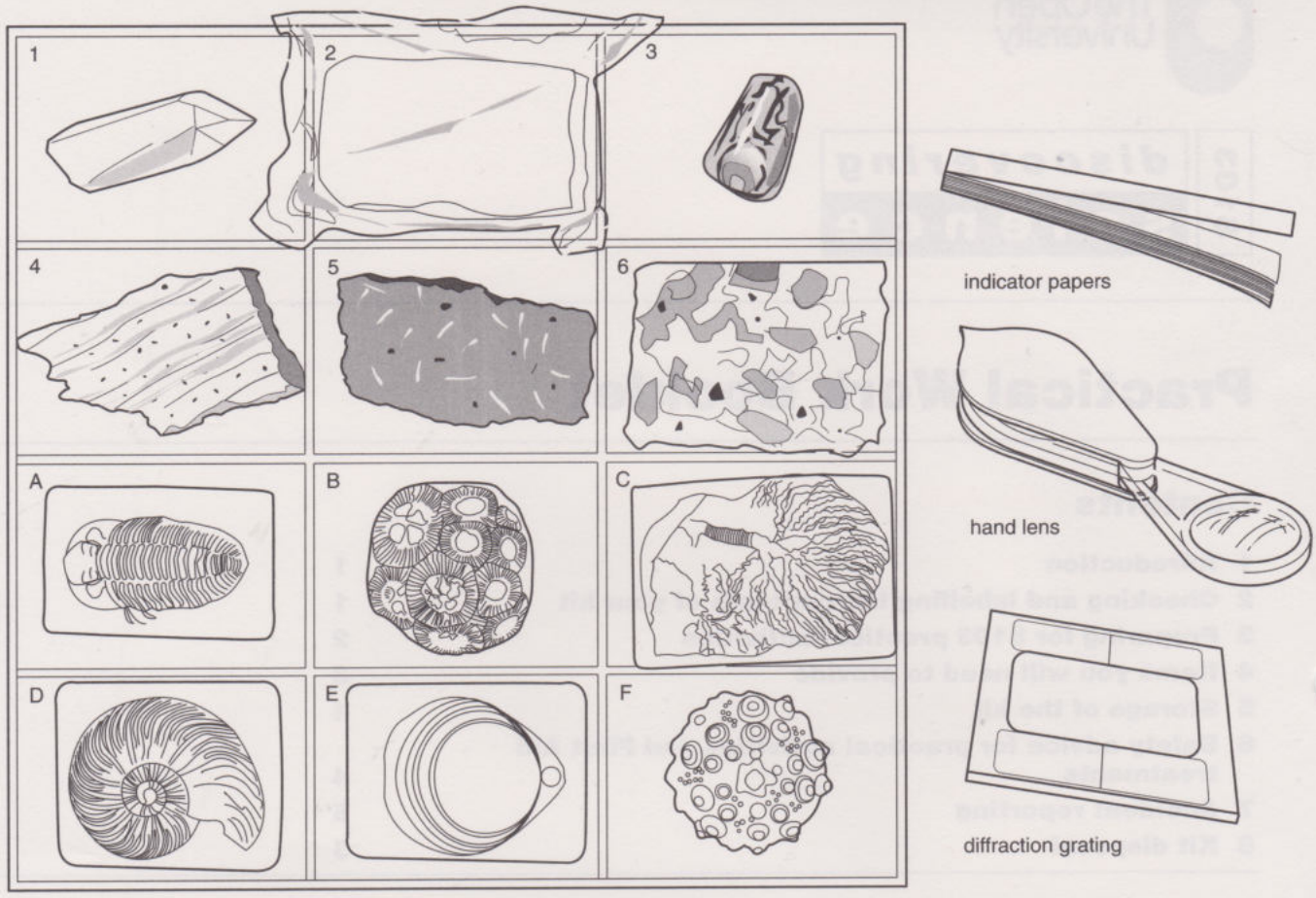

key to specimens

1 colourless, transparent	2 pale, in plastic bag	3 polished pebble
4 grey, with shiny surfaces	5 very dark	6 pale, with dark patches
A fossil cast	B fossil cast	C fossil cast
D fossil	E fossil cast	F fossil cast

Figure 1 Key to the contents of the practical kit. Specimen 1 is colourless, transparent and glassy. Specimen 2 is pale-coloured and granular, and is inside a plastic bag. Specimen 3 is a dark-coloured, rounded and polished pebble, with some lighter patches. Specimen 4 is grey with jagged edges, and has shiny surfaces made up of flakes of glittery material. Specimen 5 is very dark grey or black, with some white flecks. Specimen 6 has white, grey and black patches and two flat surfaces.

2.1 Labelling the specimens

The rock, mineral and fossil specimens in the kit are not individually labelled, but each can be distinguished on Figure 1 — rather like identifying the contents of a box of chocolates! The kit has been packed with each compartment containing a particular specimen, recognizable by shape and/or colour and described in the caption to Figure 1. You should label the specimens for yourself so that you will be able to identify them when you have taken them out of the box. We suggest that you use a small sticky label or piece of sticky tape to label each specimen with its number or letter according to Figure 1. You could also draw around each specimen onto the base of the plastic tray as this will help you to keep the specimens in the same positions as when the kit was packed.

3 Preparing for S103 practical activities

You have already carried out practical activities in Blocks 1 and 2 and there are other practical activities in most blocks of the course. The Study Guide for a block gives you general information on what the practical activities in that particular block are, how long they will take and what major equipment and materials they require. Some activities involve only items from the kit, while others, like those in Blocks 1 and 2, use items that

you are likely to have around the home. The items that you will need to provide for the practical activities are listed in Section 4 of this booklet.

Before starting work on a particular block you should scan the notes for the practical activities in the Study File for that block. The information in the Study File will enable you to plan when to do the practical work and will give you more information about the equipment and materials that you need. We recommend that you try to obtain any items that you need to provide as soon as possible, to make sure that you will not be held up when you are ready to do the practical work.

Before you begin a practical activity, collect all the equipment and materials together. You will also need paper and pencil to write down results or note down any queries or problems you have. You should ensure that you have sufficient time available to complete either the whole activity or a section of the activity. Be sure to read any safety advice in the Study File notes before starting.

4 Items you will need to provide

You will need to provide the following items for practical activities in the rest of the course. Check the list carefully as you may need to purchase some of the items. More information about each item will be given in the Study File for the relevant block.

There are also *optional* practical activities in Blocks 3, 6 and 8. The items required for these are not listed here; details are given in the relevant Study Files.

Item	Required for Block
ruler (marked with centimetres and millimetres)	3, 4, 7, 9 and 10
plastic containers	4 and 8
can of tomato soup	4
cling film	4
electric kettle	5
kitchen scales (or measuring jug)	5
watch or clock showing seconds	5
angle-poise or table lamp	7
standard tungsten-filament light bulb (60 W) (to fit lamp listed above)	7
energy-saver light bulb (10–12 W)* (to fit lamp listed above)	7
piece of stiff cardboard	7
Blu-Tack	7
thread or thin string	7
masking or sticky tape	7
sharp knife	7 and 9
needle	7
drawing pin	7
plastic dropper or drinking straw	8
washing soda	8
baking powder	8
bicarbonate of soda	8
vinegar	8
lemon juice	8
carbonated (sparkling) mineral water	8
household cleaning fluids	8
personal washing liquids (e.g. shampoo)	8
chopping board	9
glass jar with lid (e.g. jam jar)	10

*Suitable bulbs include: Phillips RL Electronic C (11 W); Mazda 4L Electronic (12 W).

5 Storage of the kit

Because your kit contains small items you are strongly advised to keep them in the plastic box, and only remove those needed for a particular activity. When not in use the kit should be stored out of the reach of children.

6 Safety advice for practical activities and First Aid treatments

The University has a duty to give advice on health and safety and First Aid to students carrying out any activities that are described in the course.

In one of the practical activities in Block 10 you will come into contact with soil and/or non-tap water. Therefore, it would be advisable to contact your General Practitioner (family doctor) about the need for a course of tetanus injections (or a booster, if appropriate).

When you have read through the practical procedure for a particular activity, decide where it will be best for you to do the work. Activities involving the use of household chemicals are best performed near a water supply and drainage, and should always be carried out in a well-ventilated room.

6.1 Before you begin a practical activity

- Try to ensure you can do the activity without interruption.
- Do not perform practical activities when children and animals are around.
- Clear your working area of clutter. Put all food away. Ensure there is nothing to trip on underfoot.
- Take note of any special care needed in handling household chemicals and of any special treatments required in case of accident. Be sure to read any safety advice on the containers.

After every practical activity wash thoroughly any kitchen utensils you have used.

6.2 What to do in the event of an accident

Fire

In the event of a fire, switch off and disconnect any electrical equipment, cover the fire with a wet towel or dry earth or sand. Shut all windows, doors and vents. Evacuate all personnel, close the door behind you and telephone the fire service.

Clothing on fire

Get the patient to lie down, and smother the flames by rolling in a carpet, blanket, overcoat, etc. Obtain medical aid immediately.

Electric shock

Switch off the source of the current or remove the patient with an insulated lever. Make the patient lie down and keep her/him warm. Obtain medical aid if the patient loses consciousness or has difficulty in breathing. If breathing ceases begin artificial respiration immediately.

6.3 First Aid treatments

Cuts

If you cut yourself, rinse the cut with clean running water. If the cut is serious, try to reduce the blood flow by putting a pad of *clean* tissue or cloth over the wound and pressing gently, but firmly, raising the limb, until the flow stops. If you have any concerns, seek medical aid immediately.

Burns and scalds

The notes below act as a simple guide for the First Aid treatment of burns and scalds.

(a) DO NOT prick any blisters.

(b) DO NOT apply ointments or oil based dressings.

(c) DO NOT remove anything sticking to the burn.

If you have any concerns, seek medical aid immediately.

The First Aid treatment of burns and scalds is designed to achieve three basic aims:

1 *To get rid of residual heat*

The affected area should be immersed in or held under gently running cold water for at least ten minutes, or longer if cessation causes the pain to return. This treatment will relieve the pain and help to reduce the severity of the final injury.

2 *To prevent infection*

Avoid handling a burn unnecessarily, especially if the skin is broken. Remove any adjacent clothing not sticking to the burn and cover the area with a clean, dry dressing. Restrict the movement of badly burned areas.

3 *To treat for shock*

A shocked patient should be laid down, kept warm and as comfortable as possible, with legs raised and supported as high as possible. Undo anything that constricts the neck, chest or waist. Give nothing by mouth and obtain medical aid.

7 Accident reporting

It is a legal requirement to report accidents arising from any work activities, including those involving your Open University studies. If anyone is injured in an accident involving a practical activity or the home practical kit **which requires a hospital visit or medical attention** you should complete an accident report form as soon as possible. To obtain a form, please contact the Health and Safety Section at Walton Hall (Tel. 01908 653344).

8 Kit disposal

The home practical kit forms part of your course materials and you are not required to return your kit at the end of the course. If you do not wish to keep your kit you might like to pass it on to a local school or college which may be able to make use of it. Otherwise you should dispose of it as follows:

Replace all the items in the plastic box, wrap securely in newspaper and discard in a waste bin out of the reach of children.

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